

AMENDMENTS TO THE CLAIMS

Claims 1-43 (Cancelled)

Claim 44 (Currently Amended) A decoding method for decoding blocks of picture data included in a bit stream, said decoding method comprising:

obtaining, by a command obtainment unit and from the bit stream including the blocks of picture data, a sequence of commands for respectively assigning frame-indices, used for frame decoding, to reference frames of the blocks of picture data;

adaptively switching, by a processor and on a block-by-block basis of the blocks of picture data, between frame decoding and field decoding;

specifying, by a reference frame specification unit and in a case where frame decoding is performed on a block of picture data included in the bit stream, a reference frame, which is referred to when decoding the block of picture data, according to a reference index extracted from a coded block information area of the bit stream and according to a frame-index included in the assigned frame-indices;

specifying, by a reference field specification unit and in a case where field decoding is performed on the block of picture data included in the bit stream, a reference field, which is referred to when decoding the block of picture data, according to a reference index extracted from the coded block information area of the bit stream and according to a field-index, which is for field decoding the block of picture data and which is generated using a frame-index included in the assigned frame-indices;

obtaining, from the bit stream, information indicating a maximum number of frame-indices; and

determining a maximum number of field-indices to be double a value of the maximum number of frame-indices,

wherein said specifying of the reference field includes:

extracting the reference index from the coded block information area of the bit stream and from within a range of the determined maximum number of field-indices;

specifying, as the reference field, a field having a parity that is the same as a parity of a field including the block of picture data, out of two fields that make up the reference frame specified according to the frame-index, in a case where a value of the extracted reference index is double a value of the frame-index; and

specifying, as the reference field, a field having a parity that is different from the parity of the field including the block of picture data, out of the two fields that make up the reference frame specified according to the frame-index, in a case where the value of the extracted reference index is double the value of the frame-index, plus one.

Claims 45-47 (Cancelled)

Claim 48 (Currently Amended) ~~A non-transitory computer-readable recording medium data storage medium~~ having a program ~~recorded-stored~~ thereon, the program for decoding a coded block signal, and the program causing a computer to execute ~~the~~ a decoding method comprising:
according to Claim 45

obtaining, by a command obtainment unit and from the bit stream including the blocks of picture data, a sequence of commands for respectively assigning frame-indices, used for frame decoding, to reference frames of the blocks of picture data;

adaptively switching, by a processor and on a block-by-block basis of the blocks of picture data, between frame decoding and field decoding;

specifying, by a reference frame specification unit and in a case where frame decoding is performed on a block of picture data included in the bit stream, a reference frame, which is referred to when decoding the block of picture data, according to a reference index extracted from a coded block information area of the bit stream and according to a frame-index included in the assigned frame-indices;

specifying, by a reference field specification unit and in a case where field decoding is performed on the block of picture data included in the bit stream, a reference field, which is referred to when decoding the block of picture data, according to a reference index extracted from the coded block information area of the bit stream and according to a field-index, which is for field decoding the block of picture data and which is generated using a frame-index included in the assigned frame-indices;

obtaining, from the bit stream, information indicating a maximum number of frame-indices; and

determining a maximum number of field-indices to be double a value of the maximum number of frame-indices,

wherein said specifying of the reference field includes:

extracting the reference index from the coded block information area of the bit stream and from within a range of the determined maximum number of field-indices;

specifying, as the reference field, a field having a parity that is the same as a parity of a field including the block of picture data, out of two fields that make up the reference

frame specified according to the frame-index, in a case where a value of the extracted reference index is double a value of the frame-index; and

specifying, as the reference field, a field having a parity that is different from the parity of the field including the block of picture data, out of the two fields that make up the reference frame specified according to the frame-index, in a case where the value of the extracted reference index is double the value of the frame-index, plus one.

Claim 49 (Cancelled)

Claim 50 (Currently Amended) A decoding apparatus for decoding blocks of picture data included in a bit stream while adaptively switching, on a block-by-block basis of the blocks of picture data, between frame decoding and field decoding, said decoding apparatus comprising:

a command obtainment unit operable to obtain, from the bit stream including the blocks of picture data, a sequence of commands for respectively assigning frame-indices, used for frame decoding, to reference frames of the blocks of picture data, and operable to obtain, from the bit stream, information indicating a maximum number of frame-indices; and

a reference frame/field specification unit operable to:

specify, in a case where frame decoding is performed on a block of picture data included in the bit stream, a reference frame, which is referred to when decoding the block of picture data, according to a reference index extracted from a coded block information area of the bit stream and according to a frame-index included in the assigned frame-indices; and

specify, in a case where field decoding is performed on the block of picture data included in the bit stream, a reference field, which is referred to when decoding the block of

picture data, according to a reference index extracted from the coded block information area of the bit stream and according to a field-index, which is for field decoding the block of picture data and which is generated using a frame-index included in the assigned frame-indices,

wherein said reference frame/field specification unit;

specifies the reference field by extracting the reference index from the coded block information area of the bit stream and from within a range of a determined maximum number of field-indices that is double a value of the maximum number of frame-indices;

specifies, as the reference field, a field having a parity that is the same as a parity of a field including the block of picture data, out of two fields that make up the reference frame specified according to the frame-index, in a case where a value of the extracted reference index is double a value of the frame-index; and

specifies, as the reference field, a field having a parity that is different from the parity of the field including the block of picture data, out of the two fields that make up the reference frame specified according to the frame-index, in a case where the value of the extracted reference index is double the value of the frame-index, plus one.

Claim 51 (Currently Amended) A coding method for coding blocks of picture data, said coding method comprising:

generating, by a command generation unit, a sequence of commands for respectively assigning frame-indices, used for frame coding, to reference frames of the blocks of picture data;

adaptively switching, by a processor and on a block-by-block basis of the blocks of picture data, between frame coding and field coding;

specifying, by a reference frame specification unit and in a case where frame coding is performed on a block of picture data of the blocks of picture data, a reference frame, which is referred to when coding the block of picture data, according to a frame-index included in the assigned frame-indices assigned by the sequence of commands;

specifying, by a reference field specification unit and in a case where field coding is performed on the block of picture data, a reference field, which is referred to when coding the block of picture data, according to a field-index, which is for field coding the block of picture data and which is generated using the frame-index included in the assigned frame-indices;

coding, by a reference index coding unit and as a reference index, the frame-index, which is used for specifying the reference frame, in the case where frame coding is performed on the block of picture data;

coding, by the reference index coding unit and as a reference index, the field-index, which is used for specifying the reference field, in the case where field coding is performed on the block of picture data;

coding information indicating a maximum number of frame-indices; and

determining a maximum number of field-indices to be double a value of the maximum number of frame-indices,

wherein said specifying of the reference field includes;

determining the field-index so that a number of specified reference fields is not greater than the determined maximum number of field-indices;

specifying, as the field-index, a doubled value of a value of the frame-index, which is used for specifying a reference frame including the reference field, in a case where the reference field has a same parity as a parity of a field including the block of picture data; and

specifying, as the field-index, a value obtained by adding one to the doubled value of the value of the frame-index, which is used for specifying the reference frame including the reference field, in a case where the reference field has a different parity from the parity of the field including the block of picture data.

Claims 52-54 (Cancelled)

Claim 55 (Currently Amended) A non-transitory computer-readable recording medium ~~data storage medium~~ having a program stored thereon, the program for coding an image signal, and the program causing a computer to execute ~~the~~ a coding method comprising: according to Claim 52

generating, by a command generation unit, a sequence of commands for respectively assigning frame-indices, used for frame coding, to reference frames of the blocks of picture data; adaptively switching, by a processor and on a block-by-block basis of the blocks of picture data, between frame coding and field coding;

specifying, by a reference frame specification unit and in a case where frame coding is performed on a block of picture data of the blocks of picture data, a reference frame, which is referred to when coding the block of picture data, according to a frame-index included in the assigned frame-indices assigned by the sequence of commands;

specifying, by a reference field specification unit and in a case where field coding is performed on the block of picture data, a reference field, which is referred to when coding the block of picture data, according to a field-index, which is for field coding the block of picture data and which is generated using the frame-index included in the assigned frame-indices;

coding, by a reference index coding unit and as a reference index, the frame-index, which is used for specifying the reference frame, in the case where frame coding is performed on the block of picture data;

coding, by the reference index coding unit and as a reference index, the field-index, which is used for specifying the reference field, in the case where field coding is performed on the block of picture data;

coding information indicating a maximum number of frame-indices; and

determining a maximum number of field-indices to be double a value of the maximum number of frame-indices,

wherein said specifying of the reference field includes:

determining the field-index so that a number of specified reference fields is not greater than the determined maximum number of field-indices;

specifying, as the field-index, a doubled value of a value of the frame-index, which is used for specifying a reference frame including the reference field, in a case where the reference field has a same parity as a parity of a field including the block of picture data; and

specifying, as the field-index, a value obtained by adding one to the doubled value of the value of the frame-index, which is used for specifying the reference frame including the reference field, in a case where the reference field has a different parity from the parity of the field including the block of picture data.

Claim 56 (Cancelled)

Claim 57 (Currently Amended) A coding apparatus for coding blocks of picture data while adaptively switching, on a block-by-block basis of the blocks of picture data, between frame coding and field coding, said coding apparatus comprising:

- a command generation unit operable to generate a sequence of commands for respectively assigning frame-indices, used for frame coding, to reference frames of the blocks of picture data;

- a coding unit operable to code information indicating a maximum number of frame-indices;

- a reference frame/field specification unit operable to:

 - specify, in a case where frame coding is performed on a block of picture data of the blocks of picture data, a reference frame, which is referred to when coding the block of picture data, according to a frame-index included in the assigned frame-indices assigned by the sequence of commands; and

 - specify, in a case where field coding is performed on the block of picture data, a reference field, which is referred to when coding the block of picture data, according to a field-index, which is for field coding the block of picture data and which is generated using the frame-index included in the assigned frame-indices; and

- a reference index coding unit operable to:

 - code, as a reference index, the frame-index, which is used for specifying the reference frame, in the case where frame coding is performed on the block of picture data; and

 - code, as a reference index, the field-index, which is used for specifying the reference field, in the case where field coding is performed on the block of picture data,

- wherein said reference frame/field specification unit;

specifies the reference field by determining the field-index so that a number of specified reference fields is not greater than a determined maximum number of field-indices that is double a value of the maximum number of frame-indices;

specifies, as the field-index, a doubled value of a value of the frame-index, which is used for specifying a reference frame including the reference field, in a case where the reference field has a same parity as a parity of a field including the block of picture data; and

specifies, as the field-index, a value obtained by adding one to the doubled value of the value of the frame-index, which is used for specifying the reference frame including the reference field, in a case where the reference field has a different parity from the parity of the field including the block of picture data.